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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,797	07/13/2005	Masahisa Niwa	HOK-0254	3061
74384	7590	04/14/2008		
Cheng Law Group, PLLC 1100 17th Street, N.W. Suite 503 Washington, DC 20036			EXAMINER WHITTINGTON, KENNETH	
			ART UNIT 2862	PAPER NUMBER
			MAIL DATE 04/14/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/519,797	<b>Applicant(s)</b> NIWA, MASAHISA	
	<b>Examiner</b> KENNETH J. WHITTINGTON	<b>Art Unit</b> 2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 1-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19,20 and 22-27 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/29/04</u> .  | 6) <input type="checkbox"/> Other: _____                          |

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**DETAILED ACTION*****Election/Restrictions***

Applicant's election without traverse of Group II, claims 19-27, in the reply filed on February 19, 2008 is acknowledged. Accordingly, claims 1-18 are withdrawn from further consideration pursuant.

***Abstract***

Applicant is reminded of the proper language and format for an abstract of the disclosure. The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because in line 1, it contains terms that can be implied, i.e., "is provided" in line 1. Correction is required. See MPEP § 608.01(b).

***Specification***

The disclosure is objected to because of the following informalities:

in page 23, line 24, "FIG. 1" should be "FIG. 14";

in page 33, line 6, "shit" should be "shift".

Appropriate corrections are required.

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The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 19, 20, 22 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Townsend et al. (US7061229), hereinafter Townsend. Regarding claim 19, Townsend discloses displacement detector comprising:

a constant-current supply unit configured to output a constant current including an alternating current (See Townsend FIGS. 1-3, note DC drive unit with AC overlays);

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a coil portion, to which the constant current is supplied (See FIGS. 1-4, note items 20, 20a and 20b);

a magnetic core supported to be movable relative to said coil portion in a movable range (See FIGS. 1-4, item 41); and

a signal processing circuit configured to determine a displacement of said core to said coil portion in accordance with a change in output voltage of said coil portion under a condition of supplying the constant current to said coil portion (See FIG. 1, note circuit shown);

wherein the displacement detector further comprises a characteristic-value extracting unit configured to extract a characteristic value from the output voltage of said coil portion, and a level shift circuit configured to add a level shift voltage to the characteristic value (See FIG. 3, note extracting unit comprising highpass filters and item 54 and level shift circuit item 50 for adding DC temperature compensation signal 52), and

wherein a fluctuation width of temperature coefficient of a total of the characteristic value and the level shift voltage in said movable range is smaller than the fluctuation width of temperature coefficient of the characteristic value in said movable range (See FIG. 1,

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note this is a property of the circuit shown, note compensated signal output from item 50 compared with uncompensated signal output from item 54).

Regarding claim 20, Townsend discloses a unit configured to adjust at least one of a temperature coefficient and a magnitude of the level shift voltage (See FIG. 1, note item 56 controls the level shift).

Regarding claim 22, Townsend discloses the characteristic value is one of a peak value of the output voltage of said coil portion, bottom value of the output voltage of said coil portion, and a value proportional to an amplitude of the output voltage of said coil portion (See FIG. 1, item 54 and disclosure related thereto).

Regarding claim 27, Townsend discloses said signal processing circuit comprises a signal compensation circuit composed of an A/D conversion circuit configured to convert a peak value of the output voltage of said coil portion into a digital signal, and a compensation circuit configured for digital trimming said digital signal (See FIG. 1, note A/D conversion unit 54 and trimming circuit 50).

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Townsend in view of Niwa (WO2003/002947). Regarding claims 23 and 24, Townsend teaches the features noted above with respect to claim 19 and further the coil and core being used in a linear position sensor, but not explicitly an angular position sensor. Niwa teaches an inductive sensor wherein the coil portion comprises a curved coil having a curvature, the core has a same curvature as said curved coil, and is rotatable about a rotation axis, and an insertion amount of said core into said curved coil is changed by rotating said core about the rotation axis, and the curved coil is fixed to a housing having a unit configured to adjust a change in curvature of said curved coil. (See Niwa FIGS. 1 and 2, coil 20 and core 60 and housing curve adjustment member 24 and note prior art in FIG. 34). It would have been obvious

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at the time the invention was made to modify the linear position sensor of Townsend into an angular position sensor as taught by Niwa. One having ordinary skill in the art would do so because as noted in Townsend, its apparatus can be used to measure linear or angular position and its apparatus can be used in any system using a coil to measure a physical parameter (See Townsend col. 6, lines 28-62). Furthermore, as noted in Niwa, the combination of coil and core moving therein can be used to measure either rotary or linear displacement of the core with respect to the coil (See Niwa page 17, last full paragraph, note apparatus usable for either linear in FIG. 34 or rotary for FIGS. 1 and 2).

Regarding claims 25 and 26, the noted combination teaches using an angular position sensor having a curved coil and core as noted above with regard to claim 24, but not additional coils/cores either axially or radially spaced therefrom. Nonetheless, Niwa also teaches a plurality of curved coils/core displacement transducers either axially displaced (See Niwa FIGS. 24-26) or radially displaced (FIGS. 27 and 28) from each other. It would have been obvious at the time the invention was made to incorporate either the additional radial or axial coil/core



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sensors in place of the single coil/core sensor of the noted combination. One having ordinary skill in the art would do so to provide a failsafe system of similar coil/core sensors (See Niwa carryover paragraph over pages 24-25).

### ***Allowable Subject Matter***

Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not show or teach the particular arrangement of components recited in the claim and in combination with the other features of the claim.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US6781366 and US5115193 each illustrate devices that read at least on claim 19. Any inquiry concerning this communication or earlier communications from the examiner should be directed

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to KENNETH J. WHITTINGTON whose telephone number is (571)272-2264. The examiner can normally be reached on Monday-Friday, 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on (571) 272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kenneth J Whittington/  
Primary Examiner, Art Unit 2862